



General

Guideline Title

The role of endoscopy in enteral feeding.

Bibliographic Source(s)

ASGE Standards of Practice Committee, Jain R, Maple JT, Anderson MA, Appalaneni V, Ben-Menachem T, Decker GA, Fanelli RD, Fisher L, Fukami N, Ikenberry SO, Jue T, Khan K, Krinsky ML, Malpas P, Sharaf RN, Dominitz JA. The role of endoscopy in enteral feeding. *Gastrointest Endosc*. 2011 Jul;74(1):7-12. [72 references] [PubMed](#)

Guideline Status

This is the current release of the guideline.

This release updates a previously published guideline: Eisen GM, Baron TH, Dominitz JA, Faigel DO, Goldstein JL, Johanson JF, Mallory JS, Raddawi HM, Vargo JJ 2nd, Waring JP, Fanelli RD, Wheeler-Harbough J. Role of endoscopy in enteral feeding. *Gastrointest Endosc* 2002 Jun;55(7):794-7. [53 references]

Recommendations

Major Recommendations

Definitions for the quality of the evidence (++++, +++O, ++OO, and +OOO) and for the strength of the recommendations ("recommends" or "suggests") are provided at the end of the "Major Recommendations" field.

1. The Practice Committee suggests nasoenteric feeding as the preferred approach to feeding patients who are expected to resume peroral nutrition within 30 days. (++)
2. The Practice Committee suggests that a variety of factors, including patient preferences, quality of life, and prognosis be addressed with the patient and the family before placement of feeding tubes. (++)
3. In patients not predicted to resume peroral nutrition within 30 days, the Practice Committee suggests that nutrition be provided via a percutaneous endoscopic feeding tube. (++)
4. The Practice Committee suggests that jejunal extension through a percutaneous endoscopic gastrostomy (PEGJ) or direct percutaneous endoscopic jejunostomy (DPEJ) are indicated in patients with severe gastroesophageal reflux, gastroparesis, or repeated tube feeding-related aspirations. (++)
5. The Practice Committee recommends a prophylactic dose of antibiotic be given intravenously before percutaneous endoscopic feeding tube placement. (++)
6. The Practice Committee suggests that tube feeds may be safely started in most patients within 4 hours of endoscopic percutaneous tube placement. (++)

Definitions:

Grading of Recommendations Assessment, Development, and Evaluation (GRADE) System for Rating the Quality of Evidence for Guidelines

Quality of Evidence	Definition	Symbol
High Quality	Further research is very unlikely to change confidence in the estimate of effect	++++
Moderate Quality	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate	+++O
Low Quality	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate	++OO
Very Low Quality	Any estimate of effect is very uncertain	+OOO

Adapted from Guyatt GH, Oxman AD, Vist GE, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. BMJ 2008;336:924-6.

Recommendation Strength

The strength of individual recommendations is based both on the aggregate evidence quality and an assessment of the anticipated benefits and harms. Weaker recommendations are indicated by phrases such as "the Practice Committee suggests," whereas stronger recommendations are typically stated as "the Practice Committee recommends."

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Diseases or conditions requiring endoscopic enteral feeding

Guideline Category

Assessment of Therapeutic Effectiveness

Management

Clinical Specialty

Gastroenterology

Internal Medicine

Pediatrics

Intended Users

Guideline Objective(s)

To provide an updated, practical strategy for the use of endoscopically placed enteral feeding tubes in patients who are unable to maintain sufficient oral intake

Target Population

Patients with an intact, functional gastrointestinal tract who are unable to consume sufficient calories to meet metabolic demands

Interventions and Practices Considered

Management

1. Assessment of patient's preferences, quality of life and prognosis prior to placement of feeding tube
2. Nasoenteric feeding
3. Percutaneous endoscopic gastrostomy (PEG)
4. Jejunal extension through a PEG (PEGJ)
5. Direct endoscopic jejunostomy (DPEJ)
6. Surgical gastrostomy
7. Antimicrobial prophylaxis in patients not already receiving appropriate antibiotic treatment at the time of the PEG insertion

Major Outcomes Considered

- Mortality
- Survival
- Quality of life
- Complication rates

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

In preparing this guideline, a search of the medical literature was performed using PubMed. Additional references were obtained from the bibliographies of the identified articles and from recommendations of expert consultants. When few or no data exist from well-designed prospective trials, emphasis is given to results from large series and reports from recognized experts. The updated literature time frame is 1990 to 2011.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Grading of Recommendations Assessment, Development, and Evaluation (GRADE) System for Rating the Quality of Evidence for Guidelines

Quality of Evidence	Definition	Symbol
High Quality	Further research is very unlikely to change confidence in the estimate of effect	++++
Moderate Quality	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate	+++O
Low Quality	Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate	++OO
Very Low Quality	Any estimate of effect is very uncertain	+OOO

Adapted from Guyatt GH, Oxman AD, Vist GE, et al. GRADE: an emerging consensus on rating quality of evidence and strength of recommendations. BMJ 2008;336:924-6.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Guidelines for appropriate use of endoscopy are based on a critical review of the available data and expert consensus at the time that the guidelines are drafted.

Rating Scheme for the Strength of the Recommendations

The strength of individual recommendations is based both on the aggregate evidence quality and an assessment of the anticipated benefits and harms. Weaker recommendations are indicated by phrases such as "The Practice Committee suggests," whereas stronger recommendations are typically stated as "The Practice Committee recommends."

Cost Analysis

Published cost analyses were reviewed. Antimicrobial prophylaxis before percutaneous endoscopic gastrostomy (PEG) is cost-effective.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

This document is a product of the Standards of Practice Committee. This document was reviewed and approved by the Governing Board of the American Society for Gastrointestinal Endoscopy.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate use of endoscopy in enteral feeding to improve outcomes and reduce complications

Potential Harms

Preprocedure Considerations

Percutaneous endoscopic gastrostomy (PEG) placement is considered a higher risk procedure for bleeding, and antithrombotic therapy should be adjusted according to published guidelines. The most common complication of PEG is wound or peristomal infection. Two large meta-analyses have shown that antimicrobial prophylaxis leads to a statistically significant reduction in the frequency of peristomal wound infection.

Postprocedure Considerations

Leakage of gastric contents or tube feeds around the PEG site has been reported to occur in 1% to 2% of patients. Potential risk factors for tube feed leakage include peristomal infection, hydrogen peroxide use for cleansing, torsion on the tube, absence of external bolster, and buried bumper syndrome.

Complications

- Patients undergoing PEG are often at high risk of complications caused by associated comorbidity. The overall PEG complication rate is reported to range from 4.9% to 10.3%.
- Serious complications of PEG placement occur in 1.5% to 4% of cases and include aspiration, bleeding, injury to internal organs, perforation, buried bumper syndrome, prolonged ileus, wound infections, necrotizing fasciitis, and, rarely, death.
- Minor complications associated with PEG placement occur in approximately 6% of patients and include tube occlusion, maceration from feeding tube leakage, and peristomal pain.
- In a meta-analysis, procedure-related mortality was reported to be 0.5%, with a 30-day all-cause mortality of 15%.
- Patients with head and neck cancer may be at increased risk of major complications compared with patients undergoing PEG for other indications.
- The risk of tumor seeding in patients with oropharyngeal tumors who undergo PEG placement is considered to be less than 1%.
- Rarely, the PEG tube is inadvertently inserted into or through the colon. In a review of 28 cases with this complication, the most common presenting symptoms were diarrhea and fecal discharge around the PEG site. In many cases, these symptoms occurred only after the PEG

was replaced.

- If a colocutaneous or gastrocolic fistula is identified, the PEG may be removed with spontaneous closure, or, in some cases, surgical repair may be required.
- Pneumoperitoneum occurs commonly after PEG. Pneumoperitoneum is usually clinically insignificant unless accompanied by signs and symptoms of peritonitis.
- Direct percutaneous endoscopic jejunostomy (DPEJ) is associated with the same type of complications as seen with PEG. In a large retrospective study from a single expert center, the mortality rate with DPEJ was 0.3% with serious adverse events occurring in 4.2%. A unique complication associated with DPEJ is jejunal volvulus.
- Overall complication rates for feeding gastrostomy tube placement in children are low and comparable to those of the adult population. A significant risk factor for postprocedure bacterial sepsis specific to the pediatric population is a previous ventriculoperitoneal shunt.
- One study showed that complication rates were similar for PEG tubes and button placement in children.

Contraindications

Contraindications

- Absolute contraindications to percutaneous endoscopic gastrostomy (PEG) placement include the inability to bring the anterior gastric wall in apposition with the abdominal wall, pharyngeal or esophageal obstruction, and significant coagulopathy.
- Relative contraindications to PEG, jejunal extension through a PEG (PEGJ), and direct percutaneous endoscopic jejunostomy (DPEJ) include ascites and neoplastic, inflammatory, and infiltrative diseases of the gastric and abdominal walls.
- The usual list of absolute and relative contraindications relating to the performance of upper endoscopy also apply.
- Previous gastric resection, hepatomegaly, and obesity may impede gastric transillumination and subsequent PEG placement.
- PEG should not be used for nutritional support when gastrointestinal tract obstruction is present.
- In esophageal cancer, some physicians prefer to avoid PEG placement before neoadjuvant therapy because of concern for tumor seeding and the inability to use the stomach as a conduit after esophagectomy. However, two single-center retrospective studies of a total of 338 patients demonstrate that PEG may be placed before neoadjuvant therapy without compromising the subsequent esophagectomy with gastric pull-through. In these patients, either nasoenteric or jejunal feeding tubes are also options for enteral nutrition (EN).

Qualifying Statements

Qualifying Statements

- Further controlled clinical studies may be needed to clarify aspects of this guideline. This guideline may be revised as necessary to account for changes in technology, new data, or other aspects of clinical practice.
- This guideline is intended to be an educational device to provide information that may assist endoscopists in providing care to patients. This guideline is not a rule and should not be construed as establishing a legal standard of care or as encouraging, advocating, requiring, or discouraging any particular treatment. Clinical decisions in any particular case involve a complex analysis of the patient's condition and available courses of action. Therefore, clinical considerations may lead an endoscopist to take a course of action that varies from these guidelines.

Ethical Considerations

Although enteral access will provide patients with nutritional support, decisions regarding placement of feeding tubes is complex and depend on a variety of factors, including patient preferences, quality of life, and prognosis. Although nutrition is considered to be one of the most basic human needs, the use of feeding tubes to provide this nutrition may not match societal values in some situations. Given that tube placement is invasive and may be painful, one must consider whether the benefits of the treatment outweigh the burdens for each patient. The implications of long-term nutritional support with a percutaneous endoscopic gastrostomy (PEG) may have major implications for both the patients and their families. For a more detailed and thorough review of the ethical and medicolegal aspects of PEG placement, the reader is referred to the American Society for Gastrointestinal Endoscopy (ASGE) Task Force on Enteral Nutrition document (see the "Availability of Companion Documents" field). Recommendations for PEG placement should be individualized with consideration given to quality of life and prospects for recovery. Some authors have proposed criteria to assist in the decision-making process regarding feeding tube placement.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Resources

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Safety

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2002 Jun (revised 2011 Jul)

Guideline Developer(s)

American Society for Gastrointestinal Endoscopy - Medical Specialty Society

Source(s) of Funding

American Society for Gastrointestinal Endoscopy

Guideline Committee

Standards of Practice Committee

Composition of Group That Authored the Guideline

Committee Members: Jason A. Dominitz, MD, MHS (*Committee Chair*); Rajeev Jain, MD; John T. Maple, DO; Michelle A. Anderson, MD; Vasundhara Appalaneni, MD; Tamir Ben-Menachem, MD; G. Anton Decker, MD; Robert D. Fanelli, MD, (*SAGES Representative*); Laurel Fisher, MD; Norio Fukami, MD; Steven O. Ikenberry, MD; Terry Jue, MD; Khalid Khan, MD, (*NASPAGHAN Representative*); Mary Lee Krinsky, DO; Phyllis Malpas, RN, (*SGNA Representative*); Ravi N. Sharaf, MD

Financial Disclosures/Conflicts of Interest

All authors disclosed no financial relationships relevant to this publication.

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Guideline Availability

Electronic copies: Available from the [American Society for Gastrointestinal Endoscopy Web site](#) .

Print copies: Available from the American Society for Gastrointestinal Endoscopy, 1520 Kensington Road, Suite 202, Oak Brook, IL 60523

Availability of Companion Documents

The following is available:

- The role of endoscopy in enteral feeding. CME course. Available from the [American Society for Gastrointestinal Endoscopy Web site](#) .
- DeLegge MH, McClave SA, DiSario JA, et al. Ethical and medicolegal aspects of PEG-tube placement and provision of artificial nutritional therapy. *Gastrointest Endosc* 2005;62:952-9. Electronic copies: Available for members from the [Gastrointestinal Endoscopy \(GIE\) Journal Web site](#) .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI on October 15, 2004. The information was verified by the guideline developer on November 5, 2004. This NGC summary was updated by ECRI Institute on September 17, 2012.

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